



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/784,199

02/24/2004

Masahiko Ito

15-046

9253

23400 7590 07/24/2008

POSZ LAW GROUP, PLC
12040 SOUTH LAKES DRIVE
SUITE 101
RESTON, VA 20191

EXAMINER

KITOV, ZEEV V

ART UNIT

PAPER NUMBER

2836

MAIL DATE

DELIVERY MODE

07/24/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/784,199	Applicant(s) ITO, MASAHIKO	
	Examiner ZEEV KITOV	Art Unit 2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 April 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 6, 14 - 18, 20 - 21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 6, 14 - 18, 20 - 21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Examiner acknowledges a submission of the amendment and arguments filed on April 22, 2008. Claims 1 – 5, 7 – 10, 11 – 13 and 19 are deleted. Claims 6, 14 and 16 are amended. New Claim 20 and 21 added. A new Office Action follows.

Objection

Claim 14 is objected to since it has been declared cancelled and after that suddenly has resurfaced as a valid claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6, 14 – 18, 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Strayer et al. (US 6,922,322) in view of Takemoto et al. (US 5,703,412) and Yaejima et al. (JP 61221674). Regarding Claim 6, Strayer disclose a power source (122 in Fig. 3); a voltage comparator inherently present in the over-voltage detect circuit (112 in Fig. 3) connected to the input voltage source for comparing

an input voltage with a predetermined reference voltage, i.e. predetermined voltage threshold of the pre-driver (102 in Fig. 3) and for outputting a control signal for removing the charge pump voltage from the gate of the switching transistor (120 in Fig. 3) when the voltage from the power source is higher than the reference voltage, and a protecting switch (120 in Fig. 3) disposed in a circuit between the power source and the electrical circuit (motor connected to output terminal in Fig. 3), the protecting switch being turned off when the control signal is supplied from the voltage comparator to the protecting switch, thereby protecting the circuit (col. 6, lines 10 – 25). As to protecting switch functioning as a rectifying diode, at the time the switching transistor (120 in Fig. 3) is switched off due to an over-voltage condition, its intrinsic diode still conducting letting the current to flow from the only in one direction from the power source to the load since the transistor 130 in Fig. 3 at that time is used as a linear voltage regulator thus still conducting the current (col. 6, lines 10 – 25).

However, it does not disclose a voltage booster. Takemoto et al. disclose the vehicle occupant protection system having the voltage booster (Fig. 1) disposed in a circuit connecting the power source (2 in Fig. 10) and the electrical load circuit (airbag system). It further recognizes necessity to protect the electrolytic capacitor (4 in Fig. 1) against over-voltages and provides his solution to resolve the problem (by discharging capacitor through transistor 9 in Fig. 1, col. 4, lines 35 – 59). The reference has the same problem solving area, namely providing an over-voltage protection for the electronic parts. Therefore, Takemoto et al. recognizes necessity to protect the capacitor against over-voltages, and Strayer et al. provide an effective solution for the problem.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the Strayer et al. system according to teachings of Takemoto et al. by using Strayer et al. overvoltage protection solution in the Takemoto et al. system because all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention. Additionally, such modification will provide extended market niche for manufacturers of the Strayer et al. system.

Additionally, the Strayer reference does not disclose using the voltage divider. Yaejima et al. disclose the voltage divider (R3, R4 in Fig. 3) being used for supplying the sampled voltage to the comparator (7 in Fig. 3). It would have been obvious to one of ordinary skill in the art at the time the invention was made to add the voltage divider of Yaejima et al. to the protection circuit of Strayer, because a particular technique, i.e. using the voltage divider to adjust the voltage values was recognized as part of ordinary capabilities of one skilled in the art.

Regarding Claim 14, Takemoto et al. disclose placement of the protective switch (9 in Fig. 1) between the voltage booster (1 in Fig. 1) and the load. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the Strayer et al. solution by placing the protective switch between the voltage booster and the load, because in such case the protective switch action (discharge of the protected capacitor) provides the faster and therefore better protection for the

capacitor, rather than the circuit with the switch placed upstream of the voltage booster, since in such case, disconnection of the power supply from the voltage booster does not immediately removes the high voltage from the capacitor (due to delays in the voltage booster).

Regarding Claim 15, Takemoto et al. disclose the vehicle occupant protection system having the voltage booster (Fig. 1) disposed in a circuit connecting the power source (2 in Fig. 10 and the electrical load circuit (airbag system). As to the airbag an airbag to be inflated with gas upon detection of a collision and an igniting circuit for igniting a device for generating the gas, all these limitations are normally inherent in the airbag system because absence of one of them would make the airbag system inoperative. As to an electrical power being supplied from the igniting circuit, Strayer et al. disclose the main source of power as the ignition voltage (122 in Fig. 3), the Strayer circuit provides a reverse and an over-voltage protection to the motor control MOSFETs (104 and 106 in Fig. 3), thus forming a protected ignition voltage source (132 in Fig. 3) denoted IgnP (Fig. 3).

Takemoto et al. further recognize necessity to protect the electrolytic capacitor (4 in Fig. 1) against over-voltages and provides his solution to resolve the problem (by discharging capacitor through transistor 9 in Fig. 1, col. 4, lines 35 – 59). Therefore, (I) the capacitor in the Takemoto et al. circuit carries the boosted high voltage and Takemoto et al. recognizes necessity to protect the capacitor against over-voltages, and (II) Strayer et al. provide an effective over-voltage protection. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have

modified the Strayer et al. according to teachings of Takemoto et al. by using Strayer et al. over-voltage protection solution in the Takemoto et al. system because all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention. Additionally, such modification will provide extended market niche for manufacturers of the Strayer et al. system.

Regarding Claim 17, the reference voltage is inherently present in the over-voltage detect circuit (112 in Fig. 3), since otherwise the over-voltage detection is impossible. Additionally, Yaejima discloses the reference voltage source (E1 in Fig. 3).

Regarding Claim 18, Yaejima discloses the reference voltage source (E1 in Fig. 3) as being variable voltage source. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the variable voltage source as the reference voltage according to teachings of Yaejima et al. because such arrangement will make the over-voltage detection circuit more flexible and easier adjustable in the filed conditions to changing requirements of protection.

Regarding Claim 20, Yaejima et al. disclose a first divider resistor (R3 in Fig. 3) connected between the power source and a divider node; and a second divider resistor (R4 in Fig. 3) connected between the divider node and ground, wherein the divided voltage is provided at the divider node. In the Strayer et al. circuit modified according to teachings of Yaejima et al. the voltage divider is connected between the power source

(122 in Fig. 3 of Strayer et al.) and the divider node. As to a motivation for such modification, see above Claim 6 rejection.

Regarding Claim 21, Strayer et al. disclose a first FET switch (130 in Fig. 3) having a first parasitic diode; and a second FET switch (120 in Fig. 3) having a second parasitic diode, the second FET switch being in series with the first FET switch, wherein the control signal is provided to both the first and second FET switches from a charge pump (110 in Fig. 3), and wherein the first FET switch and the second FET switch are connected so that the first parasitic diode is connected in a different direction from the second parasitic diode (see Fig. 3).

Response to Arguments

Applicant's Arguments have been given careful consideration but they are now moot in view of new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zeev Kitov whose current telephone number is (571) 272 - 2052. The examiner can normally be reached on 8:00 – 4:30. If attempts to reach examiner by telephone are unsuccessful, the examiner's supervisor, Michael Sherry, can be reached on (571) 272 – 2800, Ext. 36. The fax phone number for organization

Art Unit: 2836

where this application or proceedings is assigned is (571) 273-8300 for all communications.

/Michael J Sherry/

Supervisory Patent Examiner, Art Unit 2836

/Z. K./

Examiner, Art Unit 2836

7/13/2008